

STATE OF NEW MEXICO  
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT  
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING  
CALLED BY THE OIL CONSERVATION  
DIVISION FOR THE PURPOSE OF  
CONSIDERING:

*NOMENCLATURE*  
*Case No. 10692*  
*Order No. R-9501-B*

**APPLICATION OF POGO PRODUCING COMPANY FOR SPECIAL POOL RULES,  
EDDY COUNTY, NEW MEXICO.**

**ORDER OF THE DIVISION**

**BY THE DIVISION:**

This cause came on for hearing at 8:15 a.m. on March 18 and April 8, 1993, at Santa Fe, New Mexico, before Examiner Michael E. Stogner.

NOW, on this 9<sup>th</sup> day of July, 1993, the Division Director, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

**FINDS THAT:**

(1) Due public notice having been given as required by law, the Division has jurisdiction of this cause and the subject matter thereof.

(2) By Order No. R-8562, dated December 4, 1987 and made effective January 1, 1988, the Division created and defined the East Loving-Delaware Pool for the production of oil from the entire Delaware formation. The horizontal limits for said pool, as currently designated, include the following described lands in Eddy County, New Mexico:

**TOWNSHIP 23 SOUTH, RANGE 28 EAST, NMPM**

Section 2:	SW/4
Section 3:	SE/4 SE/4
Section 9:	SE/4
Sections 10 and 11:	All
Section 13:	SW/4
Section 14:	All
Section 15:	NE/4 and S/2
Section 21:	SE/4

Sections 22 and 23: All  
Section 24: NW/4  
Section 26: NW/4  
Section 27: E/2  
Section 28: NE/4  
Section 34: NE/4

(3) The East Loving-Delaware Pool is governed by the general Statewide Rules and Regulations with development on standard 40-acre spacing and proration units each having a top unit depth bracket allowable of 142 barrels of oil per day and a limiting gas/oil ratio of 2,000 cubic feet of gas per barrel of oil which results in a casinghead gas allowable of 284 MCF per day. This depth bracket allowable was established and set by said Order No. R-8562 to correspond with the top-most perforation in the discovery well for the pool, being 6,210 feet in the Reading and Bates Petroleum Company Brantley Corn. Well No. 1 located in the SE/4 SW/4 (Unit N) of Section 23, Township 23 South, Range 28 East, NMPM, Eddy County, New Mexico [see Finding Paragraph No. (5) on page 2 of said Order No. R-8562).

(4) In Division Case No. 10226, Bird Creek Resources sought the promulgation of special rules for the East Loving-Delaware Pool including a provision for a limiting gas-oil ratio of 5,000 cubic feet of gas per barrel of oil. On May 10, 1991 Order No. R-9501 was issued denying this application. Subsequently, by Order No. R-9501-A, issued in the De Novo case by the New Mexico Oil Conservation Commission and dated October 30, 1991, the Division's denial was upheld. Based upon the geological and engineering evidence in Case 10226 the following conclusions concerning said pool were ascertained:

- (a) the East Loving-Delaware Pool consists of several distinct producing members which appear to be correlatable across the entire field;
- (b) the drive mechanism within the subject reservoir is solution gas with no apparent initial gas cap; the initial solution gas-oil ratio is approximately 1,100 cubic feet of gas per barrel of oil and the bubble point pressure is approximately 2,850 psi; and,
- (c) there does not appear to be a correlation between geologic structure and wells producing at a high gas-oil ratio.

(5) The denial of Case 10226 was essentially based on the following reasons:

- (a) ultimate recovery from the pool was a function of the cumulative gas-oil ratio ("GOR"); hence, the lower the cumulative GOR, the greater the ultimate oil recovery;
- (b) waste of reservoir energy was related to the oil producing rates in the pool; hence, high oil rates accompanied by high GOR's wastes reservoir energy and low GOR's associated with low oil rates conserves reservoir energy; and,
- (c) the reservoir was at or below bubble point pressure at the time of discovery and as a result of pressure draw-down, a gas cap or caps have formed within the reservoir.

(6) In the two years since Case 10226 was originally heard (February 21, 1991) Pogo Producing Company ("Pogo"), an interest owner in the East Loving-Delaware Pool and operator of eight wells therein, has been accumulating additional data to support a higher poolwide GOR limit without affecting ultimate production.

(7) At this time Pogo seeks the adoption of special rules and regulations for the East Loving-Delaware Pool, as described in Finding Paragraph No. (2) above, establishing a limiting gas-oil ratio of 8,000 cubic feet of gas per barrel of oil.

(8) According to Division records, there were 97 producing wells in the subject pool operated by 13 separate operators for the month of December 1992, which is the latest month this information was immediately available after the conclusion of these proceedings.

(9) At the March 18, 1993 hearing five operators submitted written statements in support of this application, one submitted a written statement that it "did not object" to the application, and one operator submitted a written objection. In addition seven non-operating interested parties submitted written letters of support or statements of no objection. At the March 18th hearing a representative of Flare Oil, Inc. appeared at the hearing in opposition to this application, but withdrew this objection at the April 8th hearing.

(10) The Delaware Mountain Group in southeast New Mexico, more commonly known as the "Delaware formation", comprises three separate formations: the Bell Canyon, Cherry Canyon and Brushy Canyon.

(11) The geological evidence submitted by the applicant indicates that all of the wells that have ever produced from the subject pool have been perforated and completed exclusively in the Brushy Canyon member of the Delaware Mountain Group.

(12) The geologic and engineering testimony presented at this time by the applicant indicates that:

- (a) the solution gas-drive mechanism of this reservoir is independent of both individual well rates and overall pool production;
- (b) due to the "scattering" or random location of "high GOR wells" throughout the pool there is no relationship between structure and GOR contrary to what would be expected if a gas cap were present; therefore there is no indication of the existence of a secondary gas cap or caps within the reservoir; and,
- (c) approval of this application is in the best interest of conservation and will prevent waste.

(13) The Compensated Z-Densilog/Compensated Neutron/Gamma Ray Caliper Log run in February 20, 1991 on the applicant's Urquidez Well No. 3 located 1980 feet from the South line and 2310 feet from the West line (Unit K) of said Section 10 was offered as a type log for the entire Delaware Mountain Group which properly depicts the East Loving-Delaware Pool as it is designated at this time. The applicant also testified as to the formation tops of the three separate units within the Delaware Mountain Group on said log:

Bell Canyon formation - 2,594 feet;  
Cherry Canyon formation - 3,418 feet; and,  
Brushy Canyon formation - 4,644 feet to 6,126 feet.

(14) The applicant requested a limiting gas-oil ratio of 8,000 cubic feet of gas per barrel of oil which should be established for the Brushy Canyon horizon; however, to assure orderly development and to protect correlative rights throughout the entire Delaware Mountain Group of formations within this area, the vertical limits of the East Loving-Delaware Pool should be contracted by deleting the Bell Canyon and Cherry Canyon formations at this time, because there have been no completions in those formations in this pool, and confine the vertical limits of said pool to only the Brushy Canyon formation. Redesignation of said pool would be necessary.

(15) The proposed pool redesignation and affiliated pool rules should be adopted on a permanent basis.

(16) The effective date for this application should be July 1, 1993.

**IT IS THEREFORE ORDERED THAT:**

(1) The vertical limits of the East Loving-Delaware Pool as currently defined in Eddy County, New Mexico are hereby contracted by the deletion of the Bell Canyon and Cherry Canyon formations of the Delaware Mountain Group. Further, the East Loving-Delaware Pool is hereby redesignated the East Loving-Brushy Canyon Pool.

(2) Permanent Special Rules for said East Loving-Brushy Canyon Pool are hereby promulgated as follows:

**SPECIAL RULES AND REGULATIONS  
FOR THE  
EAST LOVING-BRUSHY CANYON POOL**

**RULE 1.** Each well completed or re-completed in the East Loving- Brushy Canyon Pool or in the Brushy Canyon formation within one mile thereof, and not nearer to or within the limits of another designated Brushy Canyon pool or Delaware pool that incorporates the Brushy Canyon, shall be produced in accordance with the Special Rules herein set forth.

**RULE 2.** The limiting gas/oil ratio for said East Loving-Brushy Canyon Pool shall be 8,000 cubic feet of gas per barrel of oil produced; each proration unit in said pool shall produce only that volume of gas equivalent to 8,000 multiplied by the top unit depth bracket allowable set for the pool (which remains 142 barrels of oil per day).

**IT IS FURTHER ORDERED THAT:**

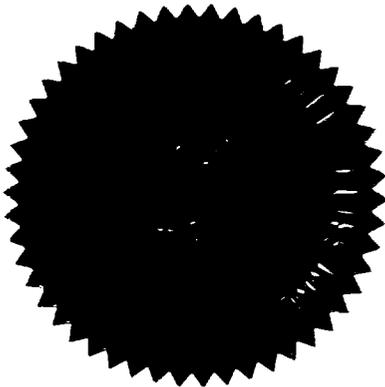
(3) The vertical contraction of the East Loving-Delaware Pool and concomitant redesignation of the East Loving-Brushy Canyon Pool and promulgation of the above special pool rules shall become effective July 1, 1993.

(4) The operator of any well affected by this order shall file with the appropriate District Office of the Division a new Form C-104 (Request For Allowable And Authorization To Transport Oil And Natural Gas) pursuant to Division General Rule 1104.E.

(5) Failure to file new Forms C-104 with the Division indicating the pool redesignation within sixty days from the date of this order shall subject the well to cancellation of allowable.

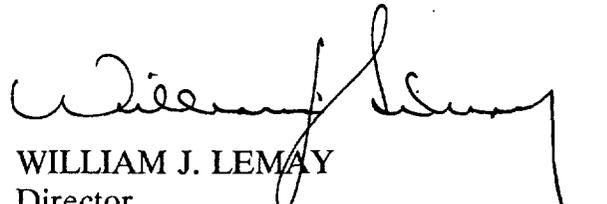
(6) Jurisdiction of this cause is retained for the entry of such further orders as the Division may deem necessary, including, the return to the statewide 2,000-to-1 gas/oil ratio limitation of the pool without notice and hearing should the Division Director deem it necessary to prevent waste and to protect correlative rights.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.



SEAL

STATE OF NEW MEXICO  
OIL CONSERVATION DIVISION

  
WILLIAM J. LEMAY  
Director